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## PHYSALIS MACROPHYSA n. sp.

Perennial; root somewhat thick and fleshy; stem erect, 0.5-1 metre high, comparatively slender, angled, perfectly smooth, or the upper parts sparingly pubescent with very short hairs; leaves large, thin, 4-8 centimetres long, 2-5 centimetres wide, the lower obtuse, the upper acute or acuminate, on slender petioles 2-4 centimetres long; pedicels 1-1.5 centimetres long, erect, in fruit reflexed; calyx smooth, lobes ovate-triangular or broadly lanceolate, generally a little shorter than the tube; corolla yellow with a dark centre, about 2 centimetres in diameter; anthers generally yellow, sometimes tinged with purple; fruiting calyx large, 3-4 centimetres long, 2.5-3 centimetres in diameter, pyramidal to ovoid-conical, indistinctly 10-angled, deeply sunken at the base; berry small, in the centre of the calyx.

This is nearly related to *P. longifolia* and *P. Philadelphia*, but differs from both by its very large and inflated fruiting calyx and its broader leaves. The following specimens have been examined:

Arkansas: A. E. Heacox, 1889.

Kansas: E. A. Popenoe, No. 68, 1875.

Texas: Lindheimer, 1828; A. A. Heller, No. 1756. 1894.

North Carolina (?): Small and Heller, No. 389. 1891.\*

Ohio (?): T. H. Horsford,\* 1879; C. W. Short,\* garden (?).

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## The Nomenclature Question.

BY LESTER F. WARD.

The German who was asked why he called his boy Hans replied:

"Pecaus it vas hees name."

The story is an old one, but no one has ever questioned the conclusiveness of the reply. It is the same answer that must be made to the question why a botanical name should be changed to make it conform to the law of priority. When a child is christened the name he receives is the one that he is supposed to have during life. A man with several aliases is always an object

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\* These specimens lack fruit and may belong to the preceding, but the leaves most resemble those of *P. macrophysa*.

of suspicion. Is there any reason why the first name that is given to a plant or animal should not always be its name as well as in the case of a human being? It is true that there is this difference, that the poor plant or animal has no choice at any time, while the child after it becomes a man or woman might have something to say if an outsider should attempt to impose a different name. Still it does not seem that the principle is fundamentally changed by this circumstance. If a lost child were to be found and named and brought up by the finder, and he should afterwards learn who his parents were and what his name was, he would very likely insist on being called by that first name. I remember that one of my boyhood playmates was called 'Ed. Wheelock,' but even when I knew him he was aware that Wheelock was not his name, but that of the person who had adopted him, and afterward, having lost him for many years from view, on meeting him again, it was Mr. Edgar Currier with whom I had to do.

Now it seems to me that all we are trying to do is to find out what the name of a plant is. It has happened in so many cases that plants have strayed, as it were, from home, been lost, adopted by strange persons, and given different names, lost for a time again and again found and renamed, and so on, that for us who now know them it is an exceedingly difficult matter to trace their history back and find out who they are. All this is due to the well known vicissitudes of all modern branches of natural history, especially of botany. In this general search for the true parentage and the true names of plants there should certainly be no difference of opinion on the main question and all should admit that what is wanted is to ascertain the real name, for all synonyms are simply aliases, and the only real name is the first name.

Nothing can certainly be more confusing than the existence of a large number of different names for the same thing, and it is no wonder that a movement was set on foot near the beginning of the present century, to endeavor to trace up the true history and find the true names of plants. It is a significant fact that this movement was initiated by a botanist, the great Augustin Pyrame de Candolle, in 1813, in his "*Théorie élémentaire de la botanique*," from which I translate the following paragraphs :

Page 228: "In order that a nomenclature become universal it

must be fixed, and the fixity of that of natural history is founded on this . . . principle . . . that the first one who discovers an object, or who records it in the catalogue of science, has the right to give it a name, and that this name must be necessarily accepted, unless it already belongs to another object or transgresses the essential rules of nomenclature."

Page 241: "It may be said in general that any name which does not involve a contradiction with the plant, and especially which does not belong to any other species, is sufficiently good to be preserved. The impropriety of a specific name or the possibility of finding more suitable ones is not sufficient to authorize a change."

Page 250, conclusion: "All this scaffolding of botanical nomenclature would crumble at its base and inevitably fall if the great majority of naturalists did not recognize the principle of which I have spoken, viz., the necessity of accepting the name given by the discoverer of a plant whenever that name is conformable to the rules. A name cannot be changed because it has little meaning; for on the same principle the second could be suppressed if a third better one was found, and the third if a fourth should present itself, etc.; thenceforward there would be no longer any fixity in nomenclature, or rather, there would be no longer any scientific nomenclature. The author himself who has first established a name has no more right than any one else to change it for the simple cause of impropriety. Priority, on the contrary, is a fixed, positive limitation, which admits of nothing arbitrary or partial; the most ancient name must therefore be always admitted."

De Candolle, it is true, made five exceptions to this universal rule, some of which would not now be regarded as valid, such, for example, as his exception according to which the name *Lunaria annua*\* might be changed because the plant is not an annual; but it has not been pretended that de Candolle fully grasped the importance of the movement, but only that the movement is itself in the nature of an evolution to which de Candolle, even that early, gave the initial impetus.

The English mind did not become fully aroused to the subject until nearly thirty years later, but the movement in that country

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\* This name is accepted in the "Kew Index." [ED.]

was much broader and embraced not merely botany but all branches of natural history.

Such was the "Stricklandian code," adopted in 1842 and otherwise known as the "Rules of the British Association." Among the great names connected with this Stricklandian code are those of Mr. Charles Darwin and Professor Henslow. In 1860 this code was reënacted with only a few changes, all looking to greater success in attaining the same object. Mr. Darwin still served on the committee, likewise Mr. A. R. Wallace, Mr. P. L. Clayton, Professor Balfour, Professor Huxley, and among botanists proper Dr. J. D. Hooker and Mr. George Bentham. A still further revision of the same was made in 1865, and this code now stands, but, strangely, has been supposed to be applicable only to zoölogy, although its provisions were equally applicable to the vegetable kingdom. In the preface of this code occurs this sentence :

"No one person can subsequently claim an authority equal to that possessed by the person who is the first to define a new genus or describe a new species."

In 1867 Alphonse De Candolle presented to the International Botanical Congress, held at Paris, a system of laws of nomenclature, upon which he had been long engaged and which with very few changes was adopted by that Congress. No one certainly could have felt more forcibly the evil effect of the multiplication of plant names than the author of the *Prodromus*, and in the introduction to these rules he says "in the four volumes of the *Prodromus* published from 1824 to 1830 the proportion of admitted genera to synonyms was approximately 100 to 55; that is to say, there were at that time about half as many synonyms as admitted genera. In the *Genera Plantarum* of Bentham and Hooker, fascicles 1 and 2, published from 1862 to 1865, which comprise about the same series of families, I have found in making the same approximate calculation 117 synonyms for 100 admitted genera. Therefore, the proportion of generic synonyms must have doubled in 36 years." This Candollean code was based, like the Stricklandian, on the law of priority and Article 15 of that code is as follows :

"Each natural group of plants can bear in the science only

one valid designation, namely, the most ancient one adopted by Linnaeus, or given after him on condition that it be conformable to the essential rules of nomenclature."

It was a noticeable fact that the Botanical Congress of Paris, which adopted these rules, was not attended by the English botanists, and Mr. W. B. Hemsley in an article in "Nature" for December 24, 1891, says of this Congress:

"In 1867 a Botanical Congress was held in Paris, to which botanists of all countries had been invited, and the most important subject discussed was botanical nomenclature. Mr. A. de Candolle had drawn up a most carefully considered code of rules to govern botanists in their writings; and this code was submitted to the assemblage of botanists, each rule being formulated and modified as the majority deemed wise. Finally the whole was printed and circulated. The fundamental principle of these laws was priority of publication with *adequate* descriptions, and unfortunately it was made retrospective without any sufficiently defined statute of limitations. For reasons of their own the Kew botanists took no part in the proceedings of this Congress; whether wisely or not it would be difficult to determine and fruitless to discuss."

It would be fruitless for me to discuss the reasons which have led the botanists of Kew to manifest so little sympathy with the general movement in favor of reform in nomenclature. Most of these reasons are well known to readers, but, as has already been said, this indifference was not due to any lack of appreciation of the importance of this reform, or of general sympathy with it, on the part of the two great leading systematists of England, Dr. Hooker and Mr. Bentham, who, as we have seen, both signed the Stricklandian code. In fact, no systematist has ever squarely approached the question and given it due attention without arriving at substantially the same conclusion. Dr. Asa Gray in his *Structural Botany*, page 348, says: "For each plant or group there can be only one valid name and that always the most ancient if it is tenable, consequently no new name should be given to an old plant or group except for necessity. That a name may be bettered is no valid reason for changing it." And on this principle it is worthy of note that against his convictions he maintained

our common blue violet under the name *Viola palmata* L., var. *cucullata* Gray, because he admitted the necessity of taking up an older name if the plant should be given specific rank, saying :

“ *Viola cucullata* Ait. ought to have been referred, as an entire-leaved variety, to the Linnaean *Viola palmata*. I am the more constrained to do so now by the fact that the name *cucullata* would have to give way to the much earlier published *V. obliqua* Hill, well figured and unmistakable in his Hortus Kewensis.”\*

Dr. David Starr Jordan, President of Leland Stanford University and a well-known ichthyologist has said, “There are only two ways of naming plants or animals, either to give them their oldest names or to give them any names you please.”† Notwithstanding the general agreement among zoölogists to the principle of the Stricklandian code it was found difficult to enforce these principles unanimously, and in 1876 the question came up afresh at the Buffalo meeting of the American Association for the Advancement of Science, and a new and slightly modified code which had been drawn by Professor Dall was adopted one year later.‡ It deals largely with the multitudinous details of zoölogical science and makes no concessions, but holds the general law of priority as the basis of all sound nomenclature, which is there reënacted and amplified. This code is now, I believe, almost unanimously enforced by zoölogists within the United States.

It does not, however, seem to have covered the case of ornithology, and the ornithologists were still in the worst possible condition in relation to the multiplication of names. At last, losing, as it would seem, all patience with the system in vogue, they met, and by a unanimous action of the American Ornithologists' Union the most stringent code of nomenclature was adopted that has ever been proposed. This is known as the code of nomenclature of the American Ornithologists' Union, published in 1886. The ornithologists had the advantage of perfect unanimity, which is one of the most important conditions to making any code a complete success. The condition of affairs that prevailed before this

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\*Asa Gray, Botanical Gazette, 11: 254. 1886.

†Botanical Gazette, 20: 163. 1895.

‡Proc. A. A. A. S., 26: 1877. Appendix.

list (1886) is well shown by comparing the lists that preceded it, that is, the lists of North American birds published by Baird in 1859, Coues in 1874, Ridgway in 1881 and Coues in 1882. By taking the first fifty genera given in the American Ornithologists' Union check-list it is found that in only *five cases* has the generic name remained the same from 1859 to 1886. That is, 45 of the 50 generic names (90 per cent.) have been unstable. Since the American Ornithologists' Union list *not one* of these fifty names has changed. The accompanying tabular statement will show more clearly than words the changes in these fifty genera. This complete list embraces 322 genera and about one thousand species and sub-species. In the ten years that have elapsed since its publication it has been found necessary to change only three genera, one sub-genus, three species and one sub-species by action of the law of priority. (See opposite table.)

This truly astonishing result must certainly be highly gratifying to the ornithologists, and the question arises whether botanists can bring about any such result in their department. A feeling in favor of such a movement has been growing stronger and stronger for a number of years, and has at last taken shape in the appointment of a committee of the Botanical Club of the American Association for the Advancement of Science at Rochester, in 1892, who proposed a set of rules of botanical nomenclature with which all are now familiar. The Club also authorized the publication, as an earnest of what the enforcement of these rules might be expected to accomplish, of a list of the plants of northeastern North America. This list is also too familiar to require comment. Of it Professor Bessey has said: "This book is the sign that the day of 'authority' as such, is ended, and the day of 'law' has begun.\* All that it seems necessary to say is that there seems to be a misapprehension on the part of some botanists as to the method by which this list was prepared, it being imagined by a few persons that the particular individuals who had most to do with it were in some way personally responsible for the result. It should be known to all that they were merely the instruments in the hands of a large committee, and that every question was submitted to all the members of that committee, even when not in

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\* American Naturalist, 29: 350. 1895.



BAIRD. 1859.	COUES 1874.	RIDGWAY. 1881.	COUES. 1882.	A. O. U. CHECK-LIST. 1886.
Podiceps. Podiceps Podilymbus. Colymbus. Mormon. Mormon. Cerorhina. Ptychorhamphus. Ombria. Phaleris. Brachyramphus. Brachyramphus. Uria. Uria. Alca. Alca. Mergulus. Stercorarius. Stercorarius. Pagophila. Rissa. Blasipus. Rhodostethia. Xema. Sterna. Sterna. Hydrochelidon. Sterna. Rhynchops. Diomedea. Diomedea. Diomedea. Procellaria. Procellaria. Puffinus. Procellaria.  Daption.  Thalassidroma. Thalassidroma. Thalassidroma. Fregetta. Phaëton. Sula. Plotus. Graculus.	Podiceps. Podiceps. Podilymbus. Colymbus. Fratercula. Fratercula. Ceratorhina. Ptychorhamphus. Phaleris. Simorhynchus. Synthliborhamphus. Brachyrhamphus. Uria. Lomvia. Utamania. Alca. Mergulus. Stercorarius. Stercorarius. Larus. Larus. Blasipus. Rhodostethia. Xema. Sterna. Sterna. Hydrochelidon. Anous. Rhynchops. Diomedea.  Diomedea. Fulmarus. Fulmarus. Puffinus. Aestrelata.  Daption. Halocyptena. Procellaria. Oceanodroma. Oceanites. Fregetta. Phaëthon. Sula. Plotus. Graculus.	Aechmophorus. Podiceps. Podilymbus. Colymbus. Lunda. Fratercula. Fratercula. Ceratorhina. Ptycorhamphus. Phaleris. Simorhynchus. Synthliborhamphus. Brachyrhamphus. Uria. Lomvia. Utamania. Alca. Alle. Megalestris. Stercorarius. Stercorarius. Pagophila. Rissa. Larus. Rhodostethia. Xema. Sterna. Sterna. Hydrochelidon. Anous. Rhynchops. Diomedea. Diomedea. Diomedea. Ossifraga. Priocilla. Priofinus. Oestrelata. Oestrelata. Daption. Halocyptena. Procellaria. Oceanodroma. Oceanites. Fregetta. Phaëthon. Sula. Plotus. Phalacrocorax.	Aechmophorus. Podiceps. Podilymbus. Colymbus. Fratercula. Fratercula. Ceratorhina. Ptychorhamphus. Simorhynchus. Simorhynchus. Synthliborhamphus. Brachyrhamphus. Uria. Lomvia. Utamania. Alca. Alle. Stercorarius. Stercorarius. Pagoph la. Rissa. Larus. Rhodostethia. Xema. Sterna. Sterna. Hydrochelidon. Anous. Rhynchops. Diomedea.  Phoebetria. Ossifraga. Priocilla. Priofinus. Oestrelata. Oestrelata. Daption. Halocyptena. Procellaria. Oceanodroma. Oceanites. Fregetta. Phaëthon. Sula. Plotus. Phalacrocorax.	Aechmophorus. Colymbus. Podilymbus. Urinator. Lunda. Fratercula. Cerorhinca. Ptychorhamphus. Cyclorrhynchus. Simorhynchus. Synthliboramphus. Brachyrhamphus. Cepphus. Uria. Alca. Plautus. Alle. Megalestris. Stercorarius. Gavia. Rissa. Larus. Rhodostethia. Xema. Gelochelidon. Sterna. Hydrochelidon. Anous. Rhynchops. Diomedea. Thalassogeron. Phoebetria. Ossifraga. Fulmarus. Puffinus. Aestrelata. Bulweria. Daption. Halocyptena. Procellaria. Oceanodroma. Oceanites. Cymodroma. Phaëthon. Sula. Anhinga. Phalacrocorax.

session, by sending out circulars, and that the deliberate vote of each member was taken in each case and the questions settled, where not unanimous, by a majority vote. For my own part I confess that I voted with the minority on a number of minor questions, but always with the feeling which I observed to prevail, not only among the members of the committee, but apparently throughout the Botanical Club itself, that minor questions were to be ignored in the presence of the great necessity for the adoption of rules to which all would subscribe. This list, prepared under many disadvantages, is, of course, imperfect in many respects and contains a few features which are especially irritating to those who attempt to use it. I have never known a botanist who was not irritated at the changing of names, yet we have all been obliged during the entire course of our studies to submit to wholesale changes of names at periodical intervals. This is no new thing, as any one may learn by reading the preface to the sixth edition of Prof. Amos Eaton's *Manual of Botany*, published in 1833. He says :

"It may be asked, why I do not follow De Candolle, *servilely*, since so many distinguished botanists have borne testimony to his great merit? Perhaps no one is a more devoted admirer of his discriminating talents, great learning and untiring assiduity than myself. But he imposes on his readers the labor of learning a multitude of new names without even a shadow of pretence. \* \* \* \* As far as I have any influence I pledge it here that the embarrassing innovations of De Candolle and others are of no *possible use* to the science of Botany. All new discoveries, however (which are not a few), *should be adopted*; and they *are adopted* in this edition. And the *necessary* new names and new nomenclature are also adopted and fully explained." (Italicized as in the original).

No one can doubt Professor Eaton's high motive in giving utterance to what he considered so conservative an expression of his views regarding the changes in classification and nomenclature made by De Candolle, and doubtless he considered De Candolle's researches as ill-advised and ephemeral as do some of our estimable contemporaries the Association code of to-day, yet I am constrained to look upon their protests as belonging to no different category than Professor Eaton's.

The botanical world has submitted to frequent changes like those we have known in the past fifty years with very little remonstrance compared to the great annoyance which they produce. In this work a new set of changes is thrust upon us, some of them very great and calculated to appeal strongly to our sense of veneration for the older names which we have so long known, and it is not to be wondered at that those who do not understand that there is any difference between this movement and the long series of changes that have been introduced in times gone by, in the different editions of our manuals and the new botanical works that have appeared, should strongly resent this last proposition to compel us to memorize a new set of names. In America the principal reasons for submitting as tranquilly as botanists have done to the changes that have been imposed has chiefly been the great respect in which all American botanists have held the authors of these books. In the case of Dr. Asa Gray that respect amounted in a very large number of cases to something more—to a real sentiment of personal affection; but this condition of things no longer exists. The argument at best was an unsound one, but one which was nevertheless effective. At the present time botanists must be convinced that any wholesale changes that are to be introduced in the botanical nomenclature of America are made for good reasons.

But, on the other hand, there is now far greater necessity for the adoption of some fundamental rules of nomenclature than have heretofore existed. Formerly there was one high seat from which the botanical decrees emanated, and there was far less danger that unreasonable things would be done by one or two persons than by many. At the present time there are large numbers of botanical centres, and if matters are to be left to the individual judgment of publishing botanists, there will be no comparing the confusion that is in store for us with that which we have had in the past. Heretofore we have only had the differences which one man or one class of men in close coöperation thought best to introduce at different periods in their own work. Now we shall not only have the changes that each individual is likely to make at different dates, but as many differences as there are different sources from which our works are to emanate. It is difficult

GRAY, MANUAL, ED. 1.	GRAY, MANUAL, ED. 2.	GRAY, MANUAL, ED. 4.	GRAY, MANUAL, ED. 5.	GRAY, SYNOPT. FL. N. AM.	GRAY, MANUAL, ED. 6.
Lappa major Gaertn. Nabalus Fraseri DC.	Lappa Major Gaertn. Nabalus Fraseri DC.	Lappa major Gaertn. Nabalus Fraseri DC.	Lappa officinalis All. Nabalus Fraseri DC.	Arctium Lappa L. Prenanthes serpentina Pursh.	Arctium Lappa L. Prenanthes serpentina Pursh.
Diplopappus amygdalinus T. & G. Solidago serotina Ait.	Diplopappus amygdalinus T. & G. Solidago serotina Ait.	Diplopappus amygdalinus T. & G. Solidago serotina Ait.	Diplopappus amygdalinus T. & G. Solidago serotina Ait.	Aster umbellatus Mill. var. latifolius G. Solidago serotina Ait. var. gigantea G.	Aster umbellatus Mill. var. latifolius G. Solidago serotina Ait. var. gigantea G.
“ gigantea Ait.	“ gigantea Ait.	“ gigantea Ait.	“ gigantea Ait.	Solidago serotina Ait.	Solidago serotina Ait.
Smilacina bifolia Ker.	Smilacina bifolia Ker. var. Canadensis G.	Smilacina bifolia Ker. var. Canadensis G.	Smilacina bifolia Ker. var. Canadensis G.		Maianthemum Canadense Desf.

GRAY, MANUAL, ED. 1.	GRAY, MANUAL, ED. 2.	GRAY, MANUAL, ED. 4.	GRAY, MANUAL, ED. 5.	WATSON, BIBLIOG. INDEX.	GRAY, MANUAL, ED. 6.
Pulsatilla patens Mill.	Pulsatilla Nuttalliana Gray.	Pulsatilla Nuttalliana Gray.	Anemone patens L. var. Nuttalliana Gr.	Anemone patens L. var. Nuttalliana Gr.	Anemone patens L. var. Nuttalliana Gr.
Ranunculus Purshii Rich.	Ranunculus Purshii Rich.	Ranunculus Purshii Rich.	Ranunculus multifidus Pursh. var. terrestris Gray.	Ranunculus multifidus Pursh.	Ranunculus multifidus Pursh.
Ranunculus aquatilis L.	Ranunculus aquatilis L. var. divaricatus Gr.	Ranunculus aquatilis L. var. divaricatus Gr.	Ranunculus divaricatus Schrank.	Ranunculus aquatilis L. var. stagnatilis D.C.	Ranunculus circinatus Sibth.
Viola Muhlenbergii Torr.	Viola Muhlenbergii Torr.	Viola Muhlenbergii Torr.	Viola canina L. var. sylvestris Regel.	Viola canina L. var. sylvestris Regel.	Viola canina L. var. Muhlenberg Gray
Elodea Virginica Nutt.	Elodea Virginica Nutt.	Elodea Virginica Nutt.	Elodes Virginica Nutt.	Elodes Virginica Nutt.	Elodes campanulata Pursh.
Lechea thymifolia Pursh.	Lechea thymifolia Pursh.	Lechea thymifolia Pursh.	Lechea thymifolia Pursh.	Lechea thymifolia Pursh.	Lechea minor Lam.
Spergularia rubra Pers. var. marina Gray.	Spergularia rubra Pers. var. marina Gray.	Spergularia rubra Pers. var. marina Gray.	Spergularia media Presl. var. macrocarpa Gr.	Lepigonum medium Fries. var. macrocarpa Wats.	Buda marina Dumor
Nuphar lutea Smith. var. Kalmiana Gr.	Nuphar Kalmiana Pursh.	Nuphar Kalmiana Pursh.	Nuphar luteum Smith. var. pumilum Gray.	Nuphar pumilum Smith.	Nuphar Kalmiana Ait.

under such circumstances to imagine what the condition of things would be were this to go on for several generations. If this is as complete and general as that of the Ornithologists' Union adopted in 1886, there is no reason to suppose that the result in botany may not be practically the same as it has proved to be in ornithology, and that with the publication of this one last set of changes, which would be simply a serious attempt to actually find what the true names of our plants are, the long continued process of bandying these plants about from one name to another must cease and each plant would have at last found its true and permanent resting place.

To illustrate in botany as has been done in ornithology we may take several of the editions of Gray's Manual, Sereno Watson's Bibliographical Index and Gray's Synoptical Flora, and make a few comparisons to show the fluctuations that species of American plants have undergone. (See opposite table.)

These are only a few samples taken almost at random of the extensive changes that were made at the different dates given. To mention my own personal experience, I began with the fourth edition of Gray's Manual only a short time before the appearance of the fifth, yet long enough for me to have wasted many precious hours in memorizing names destined to be changed. And then came the Bibliographical Index for the Polypetalae, introducing large numbers of other changes, followed by the Synoptical Flora, carrying the work into the Gamopetalae. The sixth edition of Gray's Manual edited by Mr. Watson often differs from any of the preceding, showing that the general work of wholesale alteration was still going on. Many botanists supposed, as I did at first myself, that all this was necessary and often the authors stated that the reasons for their changes were because the names formerly published were not the original names, thus directly appealing to the law of priority and defending themselves under this law, but a general glance at the whole affair shows there never was really any systematic attempt to base these changes upon any permanent and consistent scientific principles, but that to a large extent it was left to the individual judgment of the author at the particular time at which he was writing. The utter chaos into which this system has thrown the science of botany is the real cause of a movement for a stable nomenclature.

But it would seem that notwithstanding the general spirit of harmony that prevailed in the Botanical Club, and especially in the large committee that it appointed, the work that has thus far been done does not receive the unanimous approval of the working botanists of the country. A circular has recently been sent out bearing the signatures of a considerable number of men whom the science of botany justly honors, which is, in fact, in the nature of a protest against the movement. In urging the "postponement of any radical measures of reform" these gentlemen seem to admit the possibility of reform and perhaps the need of it, but, after a careful reading of this paper, I am obliged to conclude that it is in the main the result of the temporary irritation, already mentioned, which any new attempt to change the names of our plants is certain to produce. Of course, there are other causes arising out of the respective claims of rival universities, etc., etc. Especially is the *argumentum ad verecundiam* very prominent, and I might almost say justly so, since I yield to none in the profound respect which is generally shared for the great and good Dr. Gray, and for the unrivalled work in systematic botany that has been done at Harvard University. But still I am disposed not to permit mere sentiment to stand in the way of the settlement of so momentous a question as the one now before the botanical world, and I must say frankly, with all due respect for the eminent names that are appended to this circular, that I do not regard their general argument as a sound one, and I look upon the circular as little more than an appeal to botanists to preserve the *status quo*. In other words, it seems to be the product of that natural conservatism which always goes hand in hand with the spirit of progress and has its true function of preventing rash actions and hasty revolutions. With this spirit of order I fully sympathize, but at the same time I believe that the time has come for the completion of the reform movement which has merely been arrested, although gradually gaining ground since the date of the Stricklandian and of the Candolleian codes. I do not regard the present movement in any sense revolutionary. It is merely an attempt on the part of botanists to secure a uniform system which has not thus far been actually put in practice, except to a limited extent. It is now proposed to practice what has been preached.

Before attempting to discuss any of the so-called principles laid down in this circular, it may be premised that the advance movement should be regarded as essentially one of disinterested principles which only has to oppose what is really prejudice, but may be called by the milder names of sentiment and conservatism. The botanists who approve of these rules have just as much to lose as those who oppose them, and the difference is that they are willing to make this sacrifice, not for their own sakes, but for the sake of the future of botany. Their work is therefore a labor of love. It is opposed to their personal interest, and they represent the class of botanists who are willing for the sake of the future, in which they will have no part, to make a great personal sacrifice. Very few of the older ones will ever be able to rid themselves of the older names with which they are now familiar. Only the very young workers can hope that this action will redound to their personal advantage. Those who oppose this movement, if there be any (and I have no doubt there are) who really see that it might be the last time that serious changes would have to be made in botanical names, would seem to do so purely from a personal disinclination to incur the annoyance of accustoming themselves to a new set of names. It must be admitted that this motive is not as high as we might hope botanists generally to be actuated by. It is probable that some of the signers of this circular think that no stable nomenclature is possible. It is for the benefit of such that I have introduced the argument showing the action of the Ornithologists' Union, and surely no one can deny that it is equally applicable to botany. In so far as any personal rivalry or rivalry between different institutions is concerned I take no interest in it, and arguments of that nature are not only unworthy of an answer, but really admit of no answer.

As regards the familiarity of names and their sanctity on that account, much more is made of it than it deserves. For example, I have been obliged to familiarize myself with no less than four different sets of botanical names in the course of my own work. The first name I learned for a common plant was felt by me to be sacred, and it seemed a sacrilege to substitute another, but when convinced that it was necessary I submitted, and soon the second name became equally sacred with the first, and so on

to the end. Now this is the case with us all in learning the names of our familiar plants. The particular name that we learn for a plant is all that makes it sacred, and the rising generation of botanists, who will have only before them the actual first name or the real name of the plant, instead of some false synonym that occurs in the present books, will look upon that name with the same veneration as we did upon the false one, and the names that we have learned to cherish will be to them nothing but worthless synonyms. In their case this will be true, whereas in ours we were simply cherishing the names that did not properly belong to the objects to which they were applied.

I have said that the new movement is not only not revolutionary, but is simply in the nature of an evolution which has long been going on. On the contrary, it might be maintained that the so-called principles embodied in this circular, which are alleged to be an expression of conservative views, are really, on the contrary, revolutionary in their character. The following are the principal codes which have been proposed by responsible organizations for the guidance of writers in zoölogy and botany :

De Candolle's *Théorie élémentaire de la botanique*, 1813.

British Association for the Advancement of Science, 1842.

Association of American Geologists and Naturalists, 1845.

International Botanical Congress, Genoa, 1865.

American Association for the Advancement of Science, 1877.

Société Zoologique Internationale, 1882.

American Ornithologists' Union, 1883-85.

International Botanical Congress, Genoa, 1892.

Botanical Club, American Association for the Advancement of Science, 1892-93.

The codes adopted by these associations show a steady advance from the idea of giving genera and species names to suit individual taste toward the idea of giving them strictly their oldest names. And the history of nomenclature shows an advance in stability and uniformity corresponding exactly with the thoroughness with which these codes have been carried out. The circular to which reference has been made proposes a new departure in nomenclature, revolutionary in its character and, judging from the history of the science, capable of producing most chaotic results.



It may be said to embody four rules or principles which are opposed to those adopted by the Botanical Club of the American Association. These, which may for convenience be designated the *Harvard rules*, afford a good opportunity for the comparison of the two codes, which every botanist should make for himself deliberately and judiciously. It seems eminently desirable that those who have not yet given thought to the subject should understand the full significance of the problem with which the Association botanists have been dealing. The first of them, that relative to ordinal names, it is unnecessary to discuss from the standpoint of the new nomenclature, for no official action on this matter has as yet been taken by the botanical club committee.

The Harvard rules are promulgated after a distinct statement of belief\* that no stability in nomenclature is possible, and that the decision as to what names shall be used for genera is to be left to the judgment of individual botanists and not decided by the principle of priority.†

These rules represent the system which for many decades botanists all over the world have been trying to escape, a system which renders the nomenclature of a book thirty or forty years old largely unintelligible, except to the systematist, and which gives every promise of repeating its own history. It is preëminently a *laissez faire* system, and the most that can be claimed for it is that it has served "fairly well." If at the beginning of the present century botanists had adopted a system based on priority, how great would be our obligation to them! Instead of a hundred years of heterogeneous and largely unrecognizable names, we should have had a botanical literature in which a plant would always have had the same name, and ready intelligibility of this literature would be possible to every reader. The botanists of the next century will not, it is hoped, have such a hundred years of constant change to look back upon as we in our time have had.

Some botanists are prone to pin their faith to the arbitrary authority of a standard book, and are holding up that truly magnificent work, the *Index Kewensis*, now nearly completed, as the safe and only guide in nomenclature. But history shows that the

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\* Robinson, *Botanical Gazette*, 20: 103. Ap. 1895.

† *Harvard Rules*, No. 2 (May, 1895).

influence of such a work is only temporary at best. Where now is the authority of Steudel's Nomenclator, of Pfeiffer's Nomenclator, and to what extent have they contributed to uniformity in plant names? Both these works have filled an important place in the literature of botany, but for the simple reason that they did not bring forward the oldest name as the valid one they have added little to the stability of our nomenclature. It is greatly to be regretted that at the time when the Index Kewensis was in preparation the demand for a stable nomenclature had not yet become sufficiently strong to lead its authors to add principle to prestige and thus insure its permanency as a nomenclator in addition to its inestimable value as an index.

In the prelude to the Harvard rules reference is made to the calling, at an early date, of an International Botanical Congress, presumably for the purpose of "settling" the nomenclature question. It may not be out of place here to urge upon every one who may be a delegate to that Congress, or who may aid in the selection of a delegate, the careful consideration of the fact that no law is stronger than the authority that makes it, and that no authority is stronger in the end than the principle upon which it rests.

A specialist in fungi recently made the admission in conversation, not only that the objections to the new code did not apply in the case of the lower cryptogams, but that the actual application of the code itself would be desirable. The reason given for this was that these orders are not popularly known and hence their nomenclature has not become established by usage. There is the same tacit admission in the language of the Harvard circular:

"These rules [the Harvard rules] are designed to apply only to phænogams and vascular cryptogams."

In all the lower orders of plants, then, we are to be guided by the law of priority; but as soon as the Pteridophyta are reached, principle is cast aside in favor of sentiment, and because Swartz' name of *Aspidium* happens to be in common use among fern-gatherers, we are enjoined from taking up the perfectly valid designation *Dryopteris* given years previously by Adanson!

Relative to international action it is a matter of gratification to note that recent legislative change has been in conformity with the

American Association principles. The adoption of the first edition of Linnaeus' *Species Plantarum*, 1753, as the starting point of our system of nomenclature was carried through the Genoa Congress immediately after its adoption at Rochester in 1892. The Austro-German botanists in a meeting held last September adopted another fundamental principle of the American code, the retention of the oldest specific name, under whatever genus published, a principle already put in practice in the later numbers of Engler and Prantl's *Natürlichen Pflanzenfamilien*.

There are some botanists who hold that the Association rules, although sound, should not be made retroactive. Even in the Harvard rules, three of the four Association rules are expressly admitted to be desirable in future practice. It should be evident to every thoughtful person that if these principles are not made retroactive the desired reform will in no sense be secured. A gardener might with equal wisdom propose to improve a weedy garden simply by preventing the introduction of any more weeds. In the view of the reformers it is necessary to remove the old weeds as well as to keep out the new.

In some respects nomenclatural reform will escape in botany the difficulties that formerly beset it in zoölogy. We have the gratifying assurance that we are not trying an experiment, that the plan is not a merely theoretical one, and that its complete success will unquestionably be attained in botany as it has already been attained in zoölogy. Furthermore, we are able to do in a few years, in one stroke, as it were, what zoölogists, feeling their way over new ground, were many years in accomplishing. All botanists dislike changes in names, and the sooner they can be properly made the better.

There are doubtless some botanists who believe that by general agreement any set of names may be made permanent—that, for example, an International Congress may decide arbitrarily that certain generic or certain specific names are to be considered the proper ones, regardless of any principle. If this were feasible it would be an easy solution of the question, but those who have confidence in such a solution surely cannot have taken into consideration the fact that naturalists and other scientists usually have very little respect for mere authority and very great respect

for principle. This sentiment is constantly growing stronger, and there is every reason for believing not only that a large percentage of botanists would refuse to be influenced by an arbitrary agreement of this kind, but that the ever-growing younger element would within a few years absolutely reject it.

One of the statements made under the second head in this circular deserves special consideration. It is as follows: "While the scope of this rule is left to the discretion of writers, it is urged that generic nomenclature should not at present depart far from that of the three important works, Bentham and Hooker's *Genera Plantarum*, Baillon's *Histoire des Plantes*, and Engler and Prantl's *Natürlichen Pflanzenfamilien*, from which for some time to come our most complete and accurate information as to generic limits and affinities is to be derived." Nothing could better illustrate the present chaos of botanical nomenclature than a comparison of these three great works. It would be interesting to make such a comparison throughout their entire extent, but of course space will not permit of this. We may, however, refer to a few cases, taken principally at random, to show how widely these alleged standard authorities differ in the case of generic names.

BENTH. & HOOK.	ENGL. & PRANTL.	BAILLON, HIST.
Stellaria L. Wistaria Nutt. Petalostemon Michx. Centrosema DC.* Shepherdia Nutt. Spergularia Pers. Senebiera. Nelumbium Juss. Cirsium DC. Echinosperrum Sw.	Alsine L. Kraunhia Raf. Kuhnistera Lam. Bradburya Raf. Lepargyraea Raf. Tissa Adans. Coronopus Gaertn. Nelumbo Adans. Cirsium Scop. Lappula Moench.	Stellaria L. Wistaria Nutt. Petalostemon Michx. Centrosema DC.* Shepherdia Nutt. Tissa Adans. Coronopus Hall. Nelumbo Adans. Carduus L. Lappula Moench.

Any one who has the patience to carry out such a comparison to a much greater extent will readily see how little effort has been made by the great systematists named to arrive at the original names of genera, and so long as authorities are privileged to adopt

\* Bradburya Raf. is included by Benth. & Hook. and Baillon in a list of "genera dubia." The plants in question are placed under Centrosema DC.

It will be seen that all but one of these names cited from Engler and Prantl accord with those accepted by the Botanical Club's committee.

the names that best please them, there never will be any end to these wide variations.

Here again, as in the more general case above mentioned, it seems to me that the present circular is based wholly upon sentiment. The time has gone by when it was regarded as the important consideration to give special credit to the person who becomes the author of a name. It is no longer a question of credit, but a question of practical utility. The namer of a plant has done nothing more than his duty and while his name should of course stand as the author of that name, botanists are not called upon to violate the rules of nomenclature for the sole purpose of doing him some special honor. The argument that the more important service is that of fixing a species under its proper genus, and that therefore the binomial combination should bear the name of the one who established it falls to the ground, and it becomes of far greater importance that the original namer of the species, or even of the variety, if there be such, be accredited with that name, no matter how many vicissitudes it may subsequently undergo. The rule that the namer of the combination may append his name for the author of the combination, although the last term of that combination may have been named long before by another, seems to be very vicious from a number of points of view. In the first place, if the question of justice were worth considering, it would certainly be a gross injustice to the original namer for another botanist to usurp his rights and take credit for his name; but this is not the chief objection. When I see the names *Nuphar kalmiana* Pursh and *Nuphar kalmianum* Ait., I at once assume that the last name refers to a different plant from the first and that the words "non Pursh" or "not of Pursh" are understood; and when I see written *Spergularia media* Presl. var. *macrocarpa* Gray in one book and *Lepigonum medium* Fries var. *macrocarpum* Wats., I am entirely at a loss who the true author for the variety *macrocarpa* is. What seems to be most needed is some clue to the history of these names, and the particular name should always bear the authority of the one who first wrote it.

But I would like to say here that this whole matter of quoting authority is one of the worst evils of botanical writing. Any one who has the least respect for style must be infinitely annoyed by

the necessity of tacking on one or two abbreviations at the end of a name in order to give his reader an idea of what he is talking about. It makes an ugly cacophony that should not be tolerated any longer than is absolutely necessary. Now, as I understand it, one of the chief objects of this whole movement is, not to lumber up botanical writing with more things of this kind, but to get rid at the earliest possible moment of the whole of it. The ornithologists in adopting one set of names for all birds, the same name always meaning the same bird, and all agreeing that that shall be the case, have already reached the point at which they can write popular articles about birds and omit the authority, thus lending smoothness and grace as well as clearness to their discussions. This should be one of the great aims of botany. Botanists ought to draw up a list, international in its scope and based on a thorough application of the principle of priority, of all the plants known to the world, and all agree that this list should henceforth and forever be adhered to as the authoritative list of all known plants. This once done and subscribed to by all, it would no longer be necessary in any mention that botanists wish to make of any plant known to science to append the abbreviations of the various persons who have had to do with naming it. This surely would be a consummation devoutly to be wished. Of course, in all subsequent names the authority must be given as heretofore, and supplementary lists could from time to time be prepared to embody the results of current research.

But it may be said, and is said by some as a matter of fact, that advocates of the new rules of nomenclature do not adhere to the law of priority, that it has always been necessary to fix a limit or earliest date back of which it is not permissible to go. It seems superfluous to argue this question because the reasons are so thoroughly well known to all, but it may be said in general that in going back to Linnaeus, the founder of binominal nomenclature, and to the particular work of his which is regarded as containing the most complete expression of his law of binomials, we are practically going back, as in the case of the individual, to the birth or first christening of a genus or species. We may go back in language to the time when there were no common nouns and all nouns were proper names. We are told that some rude languages

are still in that condition. Now in ante-Linnaean days there were no true names of plants, certainly not systematic names. All such names may be regarded as trivial or common names, and at the time when Latin was generally written and largely spoken they were scarcely more than vernacular names. Moreover, botanists commenced describing them before they commenced naming them, and the binominal nomenclature is a direct descendant of a system of describing plants. It resulted from the dropping more and more of the adjective terms contained in the character until at last the description consisted of only two names, that of the genus and that of the species. In later times trinomials came more or less into vogue, and as the science advanced it became apparent that the name had little to do with the description, so that although up to this day many or most specific names have a greater or less descriptive value, still large numbers of them possess no such value whatever, and the combination has become simply a name or symbol by which the plant may be known. Elementary as these remarks are, it is upon such facts that is based the reason for fixing some specific standard for the origin of systematic nomenclature, and to all who clearly understand the fact this reason is wholly conclusive.

Since I have commenced the study of fossil plants I have found the same difficulty, and although the science scarcely dates back of the beginning of the present century the nomenclature is in a condition of great confusion. M. R. Zeiller in 1877 encountered this difficulty and expressed himself on the subject in the following clear and trenchant language:\*

“The unfortunate confusion that results from these successive changes in the name of one and the same object has taken place the same and in a much greater degree in other older branches of natural history, and to-day the necessity for some remedy is recognized. The only equitable and rational basis that can be adopted is the one that was proposed in 1813 by [A. P.] De Candolle in his *Théorie élémentaire de la botanique*, in the chapter on *Phytography*, viz., the maintenance throughout all changes in the

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\* R. Zeiller, Ingénieur en chef au corps national des mines. Explication de la carte géologique de la France, Tome IV., 2me Partie. Végétaux fossiles du terrain houiller, 1879, p. 5.

genus of the oldest specific name, or, more generally, the absolute principle of the right of priority. In order that the nomenclature may be invariable and universally accepted it must rest upon fixed principles whose application is not subject in any way to arbitrary judgment; thus we should adhere without exception in the case of each genus or species as De Candolle had established it, to the name first in date, even where this name has been recognized as improper and in contradiction with such and such characters of the object or group to which it is applied. Generic or specific names are in fact only designations and not definitions, and if it is admitted that they may be changed because improper, the door is opened to arbitrary action, each author interpreting differently the propriety or impropriety of a name."

I have been engaged for over fourteen years, as time would permit, upon the bibliography and synonymy of fossil plants, and hope ultimately to publish a complete catalogue of all the names that have ever been given to the extinct vegetation of the globe, fully exposing the confusion referred to and adhering strictly in the final revision to the law of priority.

Inasmuch as the representative character of the Botanical Club of the American Association has been called in question, it is of interest to know that some of the opponents of the Rochester movement formerly thought otherwise, as is seen by the following extract from the Proceedings of the Washington Botanical Club of May 7, 1892, which were published in the Botanical Gazette for June, 1892. These resolutions were duly signed by each member of the committee and are preserved in the minutes of the Club.

"At a meeting of the Botanical Club of Washington, held April 23, 1892, a committee was appointed to consider and report upon the questions of botanical congress and nomenclature. At a special meeting called May 7, this committee presented the following report, which was unanimously adopted by the Club:

"Your committee, appointed to consider the questions of a botanical congress and botanical nomenclature, held a meeting on the second of May and prepared the following resolutions:

"*Resolved*, That, while favoring the final settlement of disputed questions by means of an international congress, we do not regard the present as an opportune time, but we recommend the reference of the question of plant nomenclature first to a representative body of American botanists.



"We suggest the consideration, by such body, of the following questions, among others: the law of priority; an initial date for genera; an initial date for species; the principle once a synonym always a synonym; what constitutes publication; the form of tribal and ordinal names; the method of citing authorities; capitalization.

"We recognize the Botanical Club of the A. A. A. S. as a representative body of American botanists and commend to that body for discussion and disposal the subject of nomenclature as set forth in these resolutions."

Respectfully submitted,

LESTER F. WARD,

GEO. VASEY,

F. H. KNOWLTON,

B. T. GALLOWAY,

ERWIN F. SMITH,

GEO. B. SUDWORTH,

FREDERICK V. COVILLE,

*Committee.*

### Missouri Botanical Garden.\*

The attention of botanists is called to the facilities afforded for research at the Missouri Botanical Garden. In establishing and endowing the Garden, its founder, Henry Shaw, desired not only to afford the general public pleasure and information concerning decorative plants and their best use, and to provide for beginners the means of obtaining good training in botany and horticulture, but also to provide facilities for advanced research in botany and cognate sciences. For this purpose additions are being made constantly to the number of species cultivated in the grounds and planthouses and to the library and herbarium, and, as rapidly as it can be utilized, it is proposed to secure apparatus for work in vegetable physiology, etc., the policy being to secure a good general equipment in all lines of pure and applied botany, and to make this equipment as complete as possible for any special subject on which original work is undertaken by competent students.

A very large number of species, both native and exotic, and of horticulturists' varieties, are cultivated in the Garden and Arboretum and the adjoining park, and the native flora easily accessible from St. Louis is large and varied. The her-

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[\* This article has recently been issued as a leaflet. We take pleasure in placing it more permanently on record and in calling the attention of botanists to the valuable facilities for research afforded.—EDS.]